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ANOTHER NEW ANOLE FROM SOUTH FLORIDA

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While attending scientific meetings in Miami, Florida, the junior author walked briefly during the afternoon of November 6, 1946, along Brickell Avenue south of the business section of the city. In Brickell Park, located east of Brickell Avenue and just south of the Miami River, an unusual and unknown *Anolis* was found. Numerous individuals were seen in the park, which is landscaped with many kinds of tropical trees and shrubs, and in the immediately surrounding area. As time was limited for herpetological reconnaissance the extent of this population was not determined, but these lizards were seen two blocks south of the park along Brickell Avenue and one block west across this street from the park.

Most specimens were observed on trees or shrubs. Occasional individuals, first noted on the ground near the base of a tree, when frightened immediately scurried to the trunk. Some were resting near the ground on the sunny sides of trunks of coconut palms or on telephone poles. Others were discovered at least thirty feet above the ground in the branches of a tree where they could be seen from the south approach of the Brickell Avenue bridge.

This lizard is extremely agile and so alert and quick that it readily eludes the hand. Large specimens were especially difficult to catch. It is particularly adept at dodging around trunks and branches in order to hide in some hole or crevice or to climb out of reach. Ten or twelve specimens living on a banyan tree (*Ficus* sp.) were especially secure from the herpetologist as they took refuge among the many secondary trunks and aerial roots. Over a hundred specimens of this *Anolis* were seen but only six were captured and preserved.

They prove to belong to the species *distichus*, readily recognizable by the median groove on the top of the snout, separating two juxtaposed rows of subrectangular scales from each other. They are, furthermore, very much like *d. distichus* of the Bahamas. Coloration, habitus and virtually all scale characters appear to be essentially the same as in that race. However, an attempt to determine if possible from which of the several Bahaman Islands the lizards may have been imported revealed the existence of several distinctions—even though minor—between the Miami population and the Bahaman ones. The former could be matched with none examined from the islands, although specimens were seen from

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every island from which the species is known. It seems virtually certain the Miami population is an importation from some Bahaman Island, probably New Providence since that is the one most commonly visited. Yet it is almost equally certain (we hold some reservation, on account of the small series at hand) that the Miami population has differentiated sufficiently to be regarded as a distinct geographic race. If further specimens bear out its distinctness, it will be of great interest to determine, if possible, the date of importation of this population, as it will give a clue to the rapidity with which geographic races may differentiate at least in anoles. Degerbøl (see Hall, *Journ. Mamm.*, 23:100, 1942) has already indicated that island races—and the present instance may be considered comparable even though an island is not involved—may differentiate, among mammals at least, in as little time as 30 years. It appears that reptiles may do likewise.

The present differentiation finds a parallel in *Anolis stejnegeri*, a Floridian form—probably also a recent import, within a century or two—of the widely-distributed West Indian species *sagrei*. *A. stejnegeri*, much like the Miami race of *distichus*, differs from its nearest relative in very few characters—chief among which, in *A. stejnegeri*, is its dewlap color. The Miami *distichus* differs from its nearest relative, apparently, in three characters, but none are as obvious as dewlap color.

***Anolis distichus floridanus* subsp. nov.**

Holotype. U. S. Nat. Mus. No. 127114, adult male, secured in Brickell Park, Miami, Florida, by Robert H. McCauley, Jr., on November 6, 1946. *Paratypes*. Five. Univ. Ill. Mus. Nat. Hist. Nos. 410-411, Carnegie Museum No. 28217, Museum of Comparative Zoology No. 50001, and Chicago Natural History Museum No. 55502, same data (except for sex) as holotype.

Diagnosis. A member of the *distichus* complex, closely related to *d. distichus*, having a pale yellow dewlap; a middorsal longitudinal groove on the snout bordered on either side by a row of subrectangular scales; very small, granular dorsal and lateral scales; smooth ventral scales; an occipital scale about the size of (although a little shorter than) the external ear opening; 4 to 5 rows of loreals; a group of 5-8 (generally 6) enlarged supraoculars; supraorbital semicircles generally separated from occipital; and head scales somewhat rugose particularly on snout.

Different from *d. distichus* in always (as opposed to 19%) having the two supraorbital semicircles completely separated from each other on the middorsal line, in generally (67% as opposed to 15%) having 2 or more scales separating the prefrontal from the anterior superciliary, and in the extensive pigmentation of the throat and chest.

Description of holotype. Head scales slightly rugose, especially on top of snout and in supraocular area, smooth elsewhere; frontal ridges feebly developed, u-shaped; lores sloping; canthal ridge sharp; a distinct, nearly straight, longitudinal middorsal groove extending from rostral to level of posterior canthal, bordered on either side by a row of fairly large, subrectangular scales; 6 scales from rostral to prefrontal, on either side; a minimum of four scales across snout between posterior canthals; 7 small scales in a group in the median prefrontal area; a good-sized preoccipital, more than half size of occipital; 3 small scales preceding the preoccipital, in contact with the median prefrontal group,

entirely separating supraorbital semicircles from each other; rear scales of supraorbital semicircles larger than median scales; occipital completely separated from supraorbital semicircles; occipital shorter than most of ear-opening, but of about equal area; 6 small enlarged supraoculars, irregular in size and shape; 2 scales on each side between prefrontal and anterior superciliary; 4 canthals on either side; 4 rows of loreals; subocular series broadly in contact with supralabials; 5 supralabials and 5 infralabials to a point below middle of eye; a series of chinshields, the anterior 4 in contact with the 2 anterior infralabials, gradually merging with small throat scales; 4 rows of small scales bordering mental between anterior chinshields; gular fan very small.

Dorsal and lateral scales subequal, granular, mucronate, protuberant; ventral scales smooth, much larger than dorsals. Dorsal limb scales subequal in size to dorsal body scales, smaller toward rear of thigh, larger toward front of thigh; scales at base of tail keeled. Tail largely regenerated (see *Variation* for description of a complete tail). A pair of very slightly enlarged postanals.

Dorsal color more or less uniform, very dark brown, lighter when skin is dry; a few dark bars on forelegs. Ventral surfaces of body, limbs and tail rather closely pigmented, especially at sides of gular fan; scales on fan itself pigmented.

Snout to vent, 45 mm.; snout to anterior margin of ear, 11 mm.; snout to occiput, 10 mm.; hind leg from groin, 33 mm.; tibia 10.2 mm.

Variation. Tail in a perfect specimen with poorly defined whorls, about every 8th to 10th vertical row straighter than others, but its scales not enlarged; 5 dorsal crest scales per verticil, 3 ventral scales; small lateral scales about $\frac{1}{3}$ size of crest scales.

In the 5 paratypes, the scales from rostral to prefrontal vary from 5 to 8 (5, five; 6, three; 7, one; 8, one); small scales in prefrontal area 5 to 9 (5, two; 6, one; 7, one; 9, one); a large preoccipital in 2; small scales in front of occipital 2 to 7 (2, one; 5, one; 6, two; 7, one); enlarged supraoculars 5 to 8 (5, one; 6, five; 7, two; 8, two); scales between prefrontal and anterior superciliary 1 to 3 (1, four; 2, five; 3, one); loreal rows 4 or 5 (4, nine; 5, one); chinshields in contact with infralabials 3 to 5 (3, four; 4, four; 5, two); infralabials in contact with chinshields 2 to 3 (2, six; 3, four); scales between anterior chinshields in contact with mental 4 or 5 (4, four; 5, one). Scutellation otherwise as in the type. Coloration much the same, except that the ventral pigmentation is less intense in smaller specimens.

Tail a little longer than body, as follows: snout to vent, 40 mm., tail 55 mm.; 44, 52 mm.; 36, 49 mm.; 37.5, 44 mm.; 38, 50 mm., respectively.

Comparisons. Seven races of *distichus* are recognized at the present time: *distichus*, *distichoides*, *dominicensis*, *caudalis*, *wetmorei*, *altavelensis* and *juliae*. *A. d. distichoides* has a red dewlap, the present race a yellow one; the others are all Hispaniolan races, well distinguished by scutellation of the tail and head (Cochran, Bull. U. S. Nat. Mus., 177: 141-159, 1941). Obviously the closest relative of *d. floridanus* is *d. distichus*, widely distributed in the Bahama Islands, and with a type locality on New Providence Island. Specimens of *d. distichus* have been examined from the following islands: Cat (4), Eleuthera (23), Long (42), New Providence (8), Rum Cay (1), and Watling (30). They have been

recorded from no others (the form on Andros Island is *A. d. distichoïdes*).

From all these specimens the Miami series differs especially in the complete separation of all scales of one supraorbital semicircle from those of the other. No series of significant size approaches closer the figure obtained in the Miami series (100%) than that from the type locality of *d. distichus* (38%); the next largest is the Watling series (24%), while others are less than the average. Almost as clearly distinct is the number of scales between the prefrontals and anterior superciliary, 67% of the Miami series having 2 or more, while in the entire Bahaman series this condition occurs in 15%. The closest significant approach to the Miami series is 18%, in the Long Island specimens; in the series from the type locality the occurrence is 31%. Equally distinctive is the extensive dark pigmentation of the throat, chest and sides of belly in *A. d. floridanus*; in other specimens the venter is nearly completely unpigmented. Males of the new race are heavily pigmented over the entire ventral surface.

The Miami specimens likewise seem distinct in the very small size of the scales on the thigh, in the reduction of the caudal crest scales, and in the protuberance of the dorsal body scales and of certain hind leg scales. These apparent differences are so obviously difficult to evaluate, and so clearly dependent upon state of preservation that their significance is doubtful. No other differences are apparent in coloration, in scutellation of the tail, head and limbs, or in proportions.

The New Providence Island series is not sufficiently large (8) to serve for very reliable conclusions, at least based upon border-line percentages, although the Florida series (6) is even smaller. Nevertheless an indication exists that the origin of the Florida population probably was New Providence Island, inasmuch as the sample from the latter locality more closely approaches the characters of the Miami series than any other population. The island is suggested as a probable source also by the fact that there is a much greater frequency of intercourse between it and Miami than between any other Bahaman island and Florida.

The species is readily distinguished from *carolinensis* and *stejnegeri*, the only others previously known from this country, by the smooth ventral scales; they are strongly keeled in the others. Another name, *Anolis cooperi* Baird (Proc. Acad. Nat. Sci. Phila., 1858: 254) may well belong to some Florida species (see Barbour, Copeia 1931:87), but it is not this. The type is said to have "a few central dorsal rows of scales abruptly larger than the rest," while in all three species now definitely known from the United States the dorsal scales are uniform in size.

Remarks. As observed in life, this is a short-headed, short-bodied, short-tailed *Anolis* with rather long legs. It has a flattened appearance and at first glance is slightly reminiscent of *Hemidactylus turcicus*. The general coloration is changeable from pale gray to very dark brown. The back is marked with four poorly defined dark brown or black chevrons which point posteriorly. Both chevrons and interspaces are flecked with the opposite color, causing the pattern to be somewhat obscured. The top of the head is strikingly marked with a straight dark line across the crown and supraorbital regions. Two other similar lines diverge from the postparietal region to the posterior corner of each eye. The effect is a backward pointing triangle of dark lines upon the head. The tail,

slightly compressed, is banded with dark and light at least in the darker color phases. The extremity of the tail is nearly black with the extreme tip light buff. The legs are banded much like the tail. The venter is unmarked and is dark or light according to the color stage. The throat fan is small and is immaculate pale yellow in color. The undersides of the hind legs and tail are similarly colored though lighter.

Several males were seen displaying their throat fans and bobbing their heads in a manner resembling that of *Anolis carolinensis*.

The general color of each lizard closely matched the background on which it rested. Those on trunks of coconut palms were very light; those on rough bark were mottled heavily, while those on creosoted telephon poles were very dark brown. This camouflage was contrary to the habit of *Anolis carolinensis* which is frequently a conspicuous bright green when resting on a pale gray tree trunk.

We are much indebted to Mr. Arthur Loveridge, Dr. Doris Cochran and Mr. Clifford Pope for their courtesy in providing comparative material from the extensive collections under their care.

Fig. 1. Dorsal view of the head of a paratype of *Anolis distichus floridanus*, Univ. Ill. No. 410.

Fig. 2. Lateral view of head of same.

Fig. 3. Lateral view of tail of same. All drawings by Mrs. Katherine H. Paul, staff artist for the Department of Zoology, University of Illinois.



